EX PARTE OR LATE FILED ORIGINAL

LAW OFFICES
KELLER AND HECKMAN LLP
1001 G STREET, N.W.
SUITE 500 WEST
WASHINGTON, D.C. 20001
TELEPHONE (202) 434-4100
FACSIMILE (202) 434-4646

25 RUE BLANCHE
B-1060 BRUSSELS
TELEPHONE 32(2) 541 05 70
FACSIMILE 32(2) 541 05 80

WWW.KHLAW.COM

October 8, 1999

(202) 434-4144
bercovici@khlaw.com

VIA HAND DELIVERY

Mr. Thomas Sugrue
Chief, Wireless Telecommunications Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Ms. Kathleen M.H. Wallman
Wallman's Strategic Consulting, LLC
555 12th Street, N.W.
Washington, D.C. 20004

Re: 700 MHz Public Safety Allocation, WT Docket No. 96-86;
The Interoperability Conundrum; **Ex Parte Communication**

Dear Mr. Sugrue and Ms. Wallman:

A recent exchange of commentary concerning the development of a baseline standard for interoperability among participants in the National Coordination Committee ("NCC") has shed a great deal of light on the issue of standards for interoperability, as mandated by the Federal Communications Commission in the First Report and Order in WT Docket No. 96-86, *Development of Operational, Technical And Spectrum Requirements* for *Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010* (otherwise known as the 700 MHz public safety proceeding). The information and perspectives developed in this exchange through the NCC process serve to clarify the issues pending before both the NCC in development of proposed standards, and also before the FCC in the pending reconsideration petitions in the rulemaking. The purpose of this letter is to submit, for your consideration and benefit, this exchange of views and information. This is summarized in pertinent part below, and a compilation of the e-mail exchanges is associated as Attachment A herewith.

Background

In the First Report and Order ("1st R&O") issued in September, 1998, the Commission, among other actions, mandated that public safety agencies implementing 700 MHz band systems be capable of intercommunication with other public safety agencies, and reserved approximately

No. of Copies rec'd 0
List ABCDE

10% of the channels for interoperability communications. Secondly, the Commission designated both a 6.25 kHz bandwidth and digital emission format for operation of the 700 MHz public safety spectrum. To facilitate development of standards for the equipment to operate in this band, the Commission established the National Coordination Committee ("NCC"), pursuant to the Federal Advisory Committee Act.

Notwithstanding the urging of some parties to the contrary, the Commission "decline[d] to adopt the Project 25 Phase I standards for the 700 MHz band because we intend that this band ultimately be used with a spectrum efficient 6.25 kHz technology (Project 25 Phase I is a 12.5 kHz standard)."[1] 1st R&) at ¶113. A number of petitions for reconsideration were filed. Some requested, *inter alia*, recognition of Project 25 Phase I and acceptance of 12.5 kHz rather than 6.25 kHz bandwidth. Others, including the undersigned parties, supported the Commission's 6.25 kHz bandwidth digital standard but asked for transitional provisions allowing use of the 700 MHz public safety spectrum with existing equipment at the user's option pending development of standards, clearance of the band and ramp-up of new equipment which conforms to the standards adopted as a result of the processes mandated by the Commission. Clarification on the issues of whether the equivalency standard is complete and adequate, Note 1, *supra*, also has been requested on reconsideration.. Recognition of Project 25 as either an interim or final standard was opposed by many parties.[2]

The petitions for reconsideration of the First Report and Order are pending as of this date. In the meantime, the NCC is progressing with the interoperability standards development process.

The NCC Process

The Interoperability Subcommittee of the NCC is attempting to develop a baseline standard for interoperability. In doing so, it circulated an "evaluation matrix" for comment. While the undersigned parties understood that the Commission desired an independent assessment of, and a recommendation of appropriate standards for, the interoperability function, the

---

1 On an interim basis pending development of equipment which both technologically and economically can operate at 6.25 kHz bandwidth, the Commission allows bundling of 2 and 4 channels for 12.5 and 25.0 kHz bandwidth channels, subject to meeting an equivalency test in terms of kbps per 6.25 kHz channel. 1st R&O at ¶38. This is a data standard, and the Commission did not provide a corresponding equivalency standard for the voice path. As reflected in the associated colloquy, some parties interpret these provisions as general authority for use of 12.5 kHz bandwidth for voice communications notwithstanding the rejection of Project 25 Phase 1 as the 700 MHz band standard due to its 12.5 kHz bandwidth.

2 Project 25 has been subject to a substantial amount of controversy concerning both performance and the availability of competitive supply and price of equipment. *See "What On Earth Is Taking So Long?,"* Mobile Radio Technology, Feb. 1999; *"Project 25: Process or Politics?,"* Radio Resource Magazine, Aug., 1999; *"Tetra's Opportunity in America," Id.*

Interoperability Subcommittee is evaluating two existing equipment standards, namely Project 25, which already has been rejected by the Commission in this proceeding, and also TETRA.

In response to a request for comments on the evaluation matrix, the following question was posed for inclusion:

> Is a standard for interoperability acceptable if the standard is not fully descriptive, *i.e.*, if the standard is not proscriptive to the extent of precluding add-on features or functions of a proprietary or non-published nature (to assure full transparency of the [common] air interface, regardless of manufacturer)?

The recommendation for inclusion of the foregoing in the evaluation matrix produced more than 30 responsive comments from 14 parties. These comments have served to illuminate the controversy over recognition of Project 25 as an interoperability standard. A core issue raised by these comments is the very nature of "interoperability" as mandated by the Commission.

The Interoperability Conundrum

The Commission adopted the following definition for interoperability in the First Report and Order in the 700 MHz public safety band rulemaking:

> *Interoperability*: An essential communications link within public safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information according to a prescribed method in order to achieve predictable results.[3]

The question posed for inclusion in the matrix was intended to be fully compatible with, and facilitate the implementation of, the Commission's definition of interoperability.[4]

A substantial colloquy developed, serving to define the conundrum concerning Project 25 and whether it provides an appropriate baseline for a Commission-prescribed interoperability requirement. Excerpts from those messages follow:[5]

---

3 1st R&O at ¶ 76.

4 The issue concerning proprietary features only relates to the interoperability protocol. Proprietary system features are inherent to competitiveness for the closed end portion of the user's system.

5 As previously noted, Attachment A hereto is a complete set of the e-mail exchanges in response to the request for the addition to the evaluation matrix.

(i) Why should the standard have to preclude add-on features of a proprietary or non-published nature, as long as the basic functionality was not adversely impacted? Such an item might be battery power management. An analogy could perhaps be made for other standards such as RS-232, where some manufacturers use certain pins for other purposes, but do not adversely impact the basic receive and transmit data functionality. . . .Robert F. Schlieman (hereinafter "Schlieman"), 9/30/99, 1:06AM.

(ii) Bob, the key issues one of universality and transparency. Any add-on features are fine – **if** they are outside of the common air interface. If within the interface, (i) users are restricted to buying the same brand equipment for add-ons, and (ii) other users may in fact not be able to exchange messages unless they use the same brand of equipment. In the absence of a truly **common** interface, the users are faced with single source supply; and we all know the effects of that situation. Martin Bercovici, 9/30/99, 8:51AM.

(iii) Consider it from this perspective, by trimming un-identified bits, you may be able to improve the amount of overhead and that could improve over-all loading on the network. It may also impact the build of materials cost depending how much "spare" code is added or battery life on a hand portable.

I believe you are concerned about how many subs per channel and unit cost. Thus, there may be a validity to a question. Also, with the question you can make informed answered (sic). Without the question, you are working on assumptions. Doug Chapman (hereinafter "Chapman"), 9/30/99, 10:13AM.

(iv) Marty: OK, that puts quite a different perspective to it than the first statement.

Are you then saying the question #1, regarding a 700 MHZ baseline standard for interoperability, being an open standard, with IPR licensable under fair and reasonable, non-discriminatory terms and conditions, doesn't convey universal applicability of manufacture to a standard? Doesn't a "United States accepted or reciprocal open standard" convey the products compliant with it are made to perform, function, etc., the same within the limits of the standard?. . .Schlieman, 9/30/99, 9:40PM

(v) Doug: . . .And if you trim bits, are you not modifying the air interface so that it is no longer compliant with the standard? You can use "unidentified bits" for what

ever purpose, so long as the "identified bits", framing, etc., of the air interface complies with the standard. Schlieman, 9/30/99, 9:49PM

(vi) Bob: Think it depends on if the glass is half full or half empty. That would then depend on if you are pouring or drinking. My input was based on having every bit (Octet) defined thus it could be reasoned that any variance would have non-compliance.

Interesting to me that this was a question raised during TR-8[6] in 1994 and spare overhead was added to make Motorola happy. Here we are five years later and the same question is raised!

I believe in the kiss principal. Least amount of code, lowest common denominators, best chance for success due to minimizing complexity. It is your call, not mine. Your point is technically accurate, I can add unidentified (non-prescribed) code areas if that is how a standard is written and achieve compliance. Chapman, 9/30/99, 10:27PM.

(vii) Yes. I think that is how a manufacturer "salts away" room for future proprietary features within the cloak of a "standard". . . .Schlieman, 9/30/99, 10:58PM

It now becomes clear, at least in one respect, what lies at the heart of the competitiveness element of the controversy concerning Project 25. This issue is critical to selection of an appropriate interoperability standard for 700 MHz. Specifically, above and beyond the requisite protocol for the common air interface, the standard prescribing the Project 25 protocol also includes "spare overhead" or "unidentified bits". While the unidentified or reserved bits apparently were intended for future allocations within the standard, *see* Don Pfohl, 10/5/99 at 16:37, it may be that one or more manufacturers are utilizing this spare overhead on a proprietary basis. However, unless all manufacturers either ignore or implement the "spare overhead" in the same fashion, the radios of one manufacturer will not communicate with the radios of another manufacturer. Thus, a manufacturer " 'salts away'. . .proprietary features within the cloak of a 'standard'," Schlieman, *supra.* The only way then to achieve true interoperability is for the first-in-time or dominant manufacturer to license its proprietary features to other manufacturers.

It is suggested in the colloquy that making proprietary features, otherwise referred to as intellectual property rights ("IPR"), "licensable under fair and reasonable, non-discriminatory terms and conditions" satisfies the requirement for an interoperability standard. *See* Schlieman,

---

6 TR-8 is the engineering committee of TIA, which considered the Project 25 standard proposal.

9/30/99, 9:40PM. *See also*, Powell, 10/1/99, 6:07PM. This position raises a number of issues, including:

- How is a determination made, and by whom, which manufacturer's "IPR" is the applicable standard, assuming that competing manufacturers utilize the unidentified bits in their own independent ways?

- If the license entails a royalty fee or other monetary payment, what costs are recoverable in that fee, for example:
  - Only the cost for development of the proprietary feature of the common air interface?
  - All costs associated with development of the radio technology itself?
  - No costs, but rather an "all the market will bear" approach?

- If license fees are allocated on a cost recovery basis, what is the appropriate denominator (anticipated market) for spreading the costs (*e.g.*, total anticipated sales by licensees, by licensor and licensees?), and who determines the market size?

- If licensing is based not upon costs but rather upon an agreement to cross-license technology, is it reasonable, and indeed in the public interest, for one manufacturer to require other manufacturers to cross-license their technology as the price for entry into the 700 MHz public safety equipment market, and who makes these determinations?[7]

One commenter suggests that resolution of the foregoing issues be left to the IPR holder's representations and "private civil actions". *See* rgurss, 10/7/99, 17:00. Such resolution may not be achieved or even attempted, since litigation is costly and time consuming. Rather, manufacturers may simply abandon that technology in favor of another. *See "Tetra's Opportunity in America," supra,* concerning the Project 25 trunked marketplace. The concept of licensing under fair, reasonable and non-discriminatory terms is a fine ideal; however, there are numerous problems associated with reliance upon such an objective to achieve conformity with equipment standards set by the Federal Communications Commission.

Finally, it has been suggested that the NCC and the FCC **must** accept either the Project 25 or the TETRA standards as both have been promulgated by independent standards making organizations, and that the standard approved must be accepted with the unidentified bits fields

7 *See* Comments of Robert Speidel of Ericsson, 10/7/99, 20:36; *see also* Schlieman, 10/7/99, 10:44PM, and Speidel, 10/8/99, 11:05AM.

because the "content of these standards is beyond control of the NCC. . ." Powell, 10/3/99, 6:59PM. The undersigned strongly disagree with these premises. If the NCC is operating under such flawed reasoning, its resultant recommendations to the Commission may be tainted.

The Commission in the First Report and Order unquestionably contemplated that the NCC would have authority to sponsor development of an appropriate interoperability standard for the 700 MHz public safety systems. If the NCC elects not to do so, but rather endorses an existing standard which allows proprietary IPR utilization of unidentified bits to impact upon the ability to inter-communicate on a basis wholly transparent to the equipment utilized, the FCC and the NCC nonetheless have the power to achieve transparent interoperability. The NCC may recommend, and the FCC may promulgate, use of the published standard to the extent it prescribes a means of effecting the common air interface, and concurrently they may act to preempt the use of proprietary IPR in unidentified fields. While recognizing the operative portion of a recognized common air interface standard, the FCC could require that in compliant equipment the "unidentified bits" be utilized in a prescribed manner (*e.g.*, "1's," "0's," or in some other prescribed fashion if utilization of those fields would enhance system performance).[8] The Commission is in control of its equipment authorization process and need not, if indeed it could, cede control to an advisory committee or to a third party standards making organization.

In closing, the undersigned parties bring the foregoing to the attention of both the Commission and the Chair of the National Coordination Committee since the associated colloquy serves to illuminate an issue to an extent not previously addressed in the record of this proceeding. The 700 MHz band presents a unique opportunity for the public safety community, and for the Commission. Implementation of the band must be effected in a manner which will maximize the benefits to the user community. Those benefits include both competition in the supply of equipment and also maximization of the technological opportunities. Imposing proprietary intellectual property rights on the interoperability feature can only negatively impact the competitiveness and cost, of equipment supply,[9] thereby serving to deprive numerous small agencies such as rural and volunteer fire departments, conservation law enforcement, state wildfire suppression agencies, rescue squads and others from the capability of implementing 700 MHz band interoperable public safety systems.

Respectfully submitted,

---

8 This approach is consistent with the standard itself. *See* Pfohl, 10/5/99, *supra*. The comment that "major changes of any kind are not likely because substantial amounts of equipment have already been fielded by manufacturers using both standards" (Powell, 10/3/99, 6:59PM) is irrelevant to the recognition of a standard for the 700 MHz public safety band since there is no equipment currently operating in the band, and the point of the current exercise is to define the appropriate technology for said equipment.

9 *See* Carl Kain, 10/1/99, 9:47AM, and the reference to getting public safety "users out from under this $3,500 for every handheld curse."

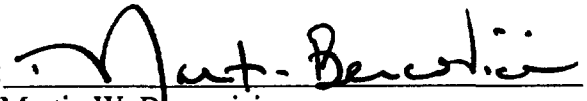
Cc w/enc.: The Honorable William E. Kennard, Chairman
The Honorable Susan Ness, Commissioner
The Honorable Harold Furchgott-Roth, Commissioner
The Honorable Michael K. Powell, Commissioner
The Honorable Gloria Tristani, Commissioner
Dale Hatfield, Chief, Office of Engineering and Technology, FCC
D'Wana Terry, Chief, Private Wireless Div., Wireless Telecom. Bureau
Michael Wilhelm, Wireless Telecommunications Bureau
Magalie R. Salas, Secretary, FCC

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

FORESTRY-CONSERVATION COMMUNICATIONS ASSOCIATION

INTERNATIONAL ASSOCIATION OF FIRE CHIEFS, INC.

INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION

By: 
Martin W. Bercovici

Their attorney

KELLER AND HECKMAN LLP
1001 G Street, N.W., Suite 500 West
Washington, D.C. 20006
Telephone: 202-434-4144
Facsimile: 202-434-4646

Enclosure

ATTACHMENT A

NCC INTEROPERABILITY SUBCOMMITTEE
E-MAIL MESSAGE EXCHANGE

From: Martin Bercovici
To: nccimp@ntoc.net,nccio@ntoc.net,ncctech@ntoc.net,Robert F. Schlieman,
Date: 9/29/99 4:13PM

We suggest the following additional question: Is a standard for interoperability acceptable if the standard is not fully descriptive, i.e. if the standard is not proscriptive to the extent of precluding add-on features or functions of a proprietary or non-published nature (to assure full transparency of the air interface, regardless of manufacturer) ? Thank you.

>>> "Robert F. Schlieman" <RSchliem@troopers.state.ny.us> 09/25/99 04:38PM >>>
1. As a result of action taken at the NCC Steering Committee Meeting on Friday afternoon, September 24, 1999, the evaluation matrix to be used for selecting the 700 MHZ Baseline Standard for Interoperability is open for comments until Friday, October 8, 1999.

2. To be considered, comments must be substantive and relevant only to the issues of direct unit-to-unit, clear and encrypted private land mobile radio communications in the 764-776/794-806 MHZ band for Public Safety in the United States, and its potential interface (e.g. cross-patch) to other Public Safety frequency bands in the United States.

3. Comments received on the Technology Sub-Committee list sever <ncctech@ntoc.net> by October 8, 1999 will be considered by Work Group 2 of that Sub-Committee.

4. In the event of significant divergent comments, the specific issues at odds will be presented for a consensus vote by E-mail.

The following document is presented for comment:

700 MHZ Baseline Standard for Interoperability - Evaluation Matrix

1. Is it a U.S. accepted or reciprocal open standard created in an open, third party forum, where the owner of technology has agreed to license its IPR on fair and reasonable non-discriminatory terms and conditions?
Answer: (Y/N) Project 25 ___ TETRA ___

2. Does it meet or exceed the FCC requirements for 4.8 kbps per 6.25 kHz channel width?
Answer: (Y/N) Project 25 ___ TETRA ___

3. Does it provide at least one voice channel per 6.25 kHz channel width?
Answer: (Y/N) Project 25 ___ TETRA ___

4. If not yes for #2 and/or #3 above, does it have a clear migration path to compliance and in what time frame in years?

Answer: (Y/N) Project 25 ___ TETRA ___

Describe: _____

5. What is the portable subscriber unit's RF power output in watts?

Answer: (maximum average TPO nn.n Watts) Project 25 ___ TETRA ___

6. As indicated in #5 above, What is the portable subscriber unit's transmitter power efficiency (TPO/battery discharge watts) in %.

Answer: (nn.n %) Project 25 ___ TETRA ___

7. What is the portable subscriber unit's RF coverage to another like unit, in miles?

Answer: (nn.n miles) Project 25 ___ TETRA ___

8. Can the opposite technology be implemented in the other radio?

Answer: (Y/N) Project 25 ___ TETRA ___

9. Is the proposed technology available in the marketplace today:

Answer: (Y/N) Project 25 ___ TETRA ___

10. Is the proposed technology using an ANSI-102.BABA vocoder for interoperability to embedded base equipment in other bands?

Answer: (Y/N) Project 25 ___ TETRA ___

11. Is U.S. Data Encryption Standard, Types 1, 2, and 3 encryption algorithms, available for the proposed product line?

Answer: (Y/N) Project 25 ___ TETRA ___

12. If vocoder is not ANSI-102.BABA, how will DES (Types 1, 2, and 3) end-to-end encryption be done when a cross-band or cross-system gateway or cross-patch is required?

Answer: (describe) Project 25

_____

TETRA

_____

13. If vocoder is not ANSI-102.BABA, what is the latency and voice quality degradation to effect a cross-patch to that vocoder standard?

Answer: (Latency = nnnn mS, describe degradation) Project 25

_____

TETRA

_____

14. Is a voice quality evaluation of the parameters in 12 available; can it be E-mailed?
Answer: (Y/N; Y/N) Project 25 ___;___ TETRA ___;___

15. Is fixed station repeater equipment available from multiple manufacturers?
Answer: (Y/N) Project 25 ___ TETRA ___

16. Is mobile station equipment available from multiple manufacturers?
Answer: (Y/N) Project 25 ___ TETRA ___

17. Is hand held portable equipment available from multiple manufacturers?
Answer: (Y/N) Project 25 ___ TETRA ___

18. Can the technology be simulcast?
Answer: (Y/N) Project 25 ___ TETRA ___

Submitted by: _____

Position/Title:_____

Public Safety Agency, or Company - if not Public Safety: _____

Telephone: _____

E-mail: _____

Date: _____

* * *

Date: Thu, 30 Sep 1999 01:06:29 -0400
From: "Robert F. Schlieman" <RSchliem@troopers.state.ny.us>

Marty:
Why should the standard have to preclude add-on features of a proprietary or non-published nature, as long as the basic functionality was not adversely impacted? Such an item might be battery power management. An analogy could perhaps be made for other standards such as RS-232, where some manufacturers use certain pins for other purposes, but do not adversely impact the basic receive and transmit data functionality.

I could agree that the standard would have to ensure that non-standard features, if any, are implemented in such a way that the standard functionality is not adversely impacted.

Robert F. Schlieman
Radio Engineer
New York State Police

* * *

From: Doug Chapman <dchapman@intekca.com>
To: "'Robert F. Schlieman'"
Date: Thu, 30 Sep 1999 06:50:07 -0700

Consider it from this perspective, by trimming un-identified bits, you may be able to improve the amount of overhead and that could improve over-all loading on the network. It may also impact the build of materials cost depending how much "spare" code is added or battery life on a hand portable.

I believe you are concerned about how many subs per channel and unit cost. Thus there may be validity to a question. Also with the question you can make informed answered. Without the question, you are working on assumptions.

Doug Chapman
Director Product Development
Intek Global

* * *

Date: Thu, 30 Sep 1999 06:52:41 -0700
To: "Robert F. Schlieman" <RSchliem@troopers.state.ny.us>
From: "John S. Powell" <jpowell@uclink4.berkeley.edu>

Bob:

You hit the nail on the head. I would recommend that the question that Marty proposed is quite appropriat as long as it is worded as you described with regard to non-standard features not impacting the full functionality of the baseline standard.

Also, I'm assuming the question set below was an earlier one as I don't see my suggested addition regarding delay spread and/or simulcast spacing on #18.

John

* * *

From: Martin Bercovici
To: Robert F. Schlieman
Date: Thu, 30 Sep 1999 08:55AM

Bob, the key issue is one of universality and transparency. Any add-on features are fine--**if** they are outside of the common air interface. If within the interface, (i) users are restricted to buying the same brand equipment for add-ons, and (ii) other users may in fact not be able to exchange messages unless they use the same brand of equipment. In the absence of a truly **common** interface, the users are faced with single source supply; and we all know the effects of that situation.

* * *

Date: Thu, 30 Sep 1999 8:56AM
From: Martin Bercovici
To: John Powell <jpowell@uclink4.berkeley.edu>

John--that was the substance and effect of my question, as limited by the parenthetical. .... If the objective is interoperability, the equipment must be interoperable between equipment of different manufacturers--without the need for licensing of proprietary features. Battery power management, as suggested by Bob, has nothing to do with the common air interface for interoperability, unless it precludes fully transparent interoperability--in which case it becomes the "lock-in" to a single brand of equipment and thereby frustrates the fundamental objective.

* * *

Date: Thu, 30 Sep 1999 21:36:19 -0400
From: "Robert Schlieman" <RSchliem@troopers.state.ny.us>
To: bercovici@khlaw.com

Marty:

OK, that puts quite a different perspective to it than the first statement.

Are you then saying that question #1, regarding a 700 MHZ baseline standard for interoperability, being an open standard, with IPR licensable under fair and reasonable, non-discriminatory terms and conditions, doesn't convey universal availability of manufacture to a standard?. Doesn't a "United States accepted or reciprocal open standard" convey that products compliant with it are made to perform, function, etc, the same - within the limits of the standard?

There is absolutely no way that we will accept a "standard" that is not compliant with question #1. Actually the two technologies which have been proposed are technically compliant with question #1, and there is ample proof that the various manufactured products within each technology are compatible over the common air interface. Our purpose is to select the technology standard that best meets the needs of U.S. Public Safety.

* * *

Date: Thu, 30 Sep 1999 21:44:06 -0400
From: "Robert Schlieman" <RSchliem@troopers.state.ny.us>
To: dchapman@intekca.com

Doug:

... And if you trim bits, are you not modifying the air interface so that it is no longer compliant with the standard? You can use "unidentified bits" for what ever purpose, so long as the "identified bits", framing, etc, of the air interface complies with the standard.

* * *

From: Doug Chapman <dchapman@intekca.com>
To: 'Robert Schlieman
Date: Thu, 30 Sep 1999 19:23:56 -0700

Bob:
Think it depends on if the glass is half full or half empty. That would then depend on if you are pouring or drinking. My input was based on having every bit (Octet) defined thus it could be reasoned that any variance would have non-compliance.

Interesting to me that this was a question raised during TR-8 in 1994 and spare overhead was added to make Motorola happy. Here we are five years later and the same question is raised!

I believe in the kiss principal. Least amount of code, lowest common denominators, best chance for success due to minimizing complexity. It is your call, not mine. Your point is technically accurate. I can add undefined (non prescribed) code areas if that is how a standard is written and achieve compliance.
But thanks for listening.

* * *

Date: Thu, 30 Sep 1999 22:54:23 -0400
From: "Robert Schlieman" <RSchliem@troopers.state.ny.us>
To: dchapman@intekca.com

Doug:

Yes. I think that is how a manufacturer "salts away" room for future proprietary features within the cloak of a "standard". Digital radio standards are immense, compared to the old stuff. there are so many
features that have to be accounted for, and it has been said, and probably rightly so, that as soon as a standard is approved, it becomes obsolete as technology marches on. I only hope that by

allowing room for advances in features and capability the customer doesn't end up with a three year old
obsolete radio, like computers have shown to be.

It concerns me in the standards formulating process that there isn't sufficient forward thinking to plan for such items that are already in use in other land mobile arenas - subscriber transmit power management being a case in point.

* * *

Date: Fri, 1 Oct 1999 11:40:04 -0400
From: Larry Miller <larrym@aashto.org>
To: Martin Bercovici <bercovici@khlaw.com>

I agree with Marty that if we really want interoperability, we should limit the standard to the lowest common denominator that will allow units of different manufacturers communicate in the direct mode.

Item 2. of the matrix asks if a standard meets the 4.8 kbps for 6.25 kHz channel width. I do not believe that P 25 or Tetra meets this standard if the equipment is required to operate within a single 6.25
kHz channel. P 25 operates in a 12.5 kHz channel bandwidth at 9.6 kbps. It operates at 0 kbps in a 6.25 kHz channel. tetra operates in a four slot TDMA per 25 kHz channel bandwidth with each time slot
being equivalent to a 6.25 kHz channel. Like P 25 tetra operates a 0 kbps in a single 6.25 kHz channel bandwidth.

The matrix also devotes much space to encription and portable battery efficiency which are of little interest to other than Police Public Safety Agencies. It is also unlikely, in my opinion, that the FBI and
other Federal Law Enforcement agencies will share their encription codes or standards with non Federal agencies.

Transportation Agency workers primary use of radios is in vehicles. The use of portable radios is limited to traffic control (flagging) and a some incident management. The current proposed matrix lists 18
questions. Does each question or issue have the same weight in the final evaluation? I do not believe that they should. The portable issue may be of great importance to Police but is not as important as
interoperability and affordability od equipment to Transportation Agencies.

Finally, I believe that the interoperability IPR standard should be Public Domain and available to all manufacturers with no fees paid to any other manufacturer. That would result in true competition between equipment suppliers.

* * *

Date: Fri, 01 Oct 1999 09:48:06 -0400
From: Carl Kain <ckain@mitretek.org>
To: Larry Miller <larrym@aashto.org>
Larry,

FYI,

There are entire sections on ITS requirements in the PSWAC final report. I know, I wrote them. They can be found in the interoperability and operational requirements sections. They are all data requirements that should be integrated unsing future public safety radio systems. Public safety is not a private domain of police, fire, and EMS. The public transit users, the highway maintenance users, the hazmat incident response users, the highway-rail safety users , the state and local government users...(this could go on forever) will not be served by a very narrowband radio that meets primarily the voice requirements of
municipal and state police departments.Unfortunately, they don't have the funding that allows strong participation in a group like the NCC. I agree with you that the "standard" have a single common air interface and basic core functions that are all public domain with no licensing fee. They can also have reserved data fields so manufacturers can differentiate themselves with enhanced features, and all intellectual property rights held by the inventor. Public safety should also concentrate on leveraging
off of the next generation mobile radio equipment (IMT 2000/3G/ whatever you know it by). These radios will be voice capable, wideband data friendly, and will probably sell tens of millions of units by the year
2006. Modifying these types of radios by adding the few public safety unique features should get the users out from under this $3500 for every handheld curse.Otherwise, future public safety officials will be carrying an expensive narrowband radio, unique to public safety only, wishing they had the latest integrated portable computing/mutimedia/wireless broadband communications handheld unit that the millions of Cellular and PCS users traded up for.

Carl Kain, PE
Principal Communications Engineer
Mitretek Systems ITS Division

* * *

Date: Fri, 01 Oct 1999 14:40:43 -0700
To: Larry Miller <larrym@aashto.org
From: John Powell <jpowell@uclink4.berkeley.edu>
Larry:

While I can not speak directly for TETRA, I can tell you that the driving governmental force behind P-25 was from the first responder agencies in the US and Canada (EMS/Fire/Law Enforcement). And while transportation organizations are sometimes very important first reponders (ice storms, major highway disruptions, etc), the other 3 are always first responders.

Beyond that, I would suggest that those 3 services (including related organizations such as forestry that has a fire function) probably make up
over 90% of the public safety equipment market. Portable equipment is absolutely required for us to perform our mission and thus is part of the baseline requirement. I do know that the law enforcement sercvices played a critical role in the TETERA process.

As I said in an earlier message, we are considering the two approved standards. No others are being considered because they are not approved standards and there is simply no way that a new standard will be developed from the ground up during the NCC's lifetime; the FCC acknowledged this in their recent modification to the 700 MHz R&O regarding the standards issue. With regard to 4.8 kbps in 6.25 kHz, it is clear from discussion with the Commission and from text within the R&O that they mean equivalent
efficiency. Thus, 2 times 4.8 in 12.5 kHz or 4 times 4.8 in 25 kHz meets their requirement.

Both of the considered standards have associated IPR. In fact, you are not going to find any good solutions today in any technical field that have not already been patented. Let's face it, companies spend huge amounts of money to identify good technologies and then they patent the results of their research investments; that's what capitalism is all about! And the larger the company, the more they tend to spend on R&D, and the larger their patent holdings. The key issue here is that IPR(s) be offered on fair, reasonable and non-discriminatory terms to all who want to produce equipment.

Finally, encryption is moving out of the law enforcement arena. Ask the several fire departments who were giving out gate combinations to gated communities over the radio, resulting in a rash of burglaries, if they need communications security! And yes, the FBI will use shared encryption keys where it is appropriate for joint operations.

John Powell

* * *

Date: Sun, 03 Oct 1999 15:57:45 -0700
To: nccimp@ntoc.net, nccio@ntoc.net, ncctech@ntoc.net
From: "John S. Powell" <jpowell@uclink4.berkeley.edu>

The following message sent to all NCC Subcommittees on Friday, October 1, was rejected by the ntoc servers and is being resent.....

----------ORIGINAL MESSAGE----------
To All:

There appears to be some confusion regarding the two standards under consideration. Both are already approved by their respective Standards Definition Organizations (SDOs); no changes are proposed to either standard at this time. The content of these standards is beyond control of the NCC; changes are subject to incorporation by the authoring bodies (the P-25 Steering Committee/TIA and the TETRA MOU Group) and approval by the SDOs (ANSI and ETSI). In

fact, major changes of any kind are not likely because substantial amounts of equipment have already been fielded by manufacturers using both standards.

In any case, if there were changes recommended, the process to put them in place would very probably take a substantial amount of time, far beyond the few months before the FCC has asked to have the issue of an interim standard resolved.

Thus, these questions are simply to ask whether each of the standards meets the point in question and, if not, to identify the potential impact of that non-compliance. In a subsequent process a decision will be made, based upon the responses to these questions, to recommend to the Technology Subcommittee
(for forwarding to the NCC Steering Committee) one or the other as the interim baseline standard.

It is therefore important that questions anyone has regarding important capabilities, features and/or functions of these two standards, or potential limitations that are important to the U.S. public safety community, be fully explored through this Q&A medium.

John Powell, Chair
Interoperability Subcommittee

* * *

From: Rick.Murphy@cio.treas.gov
To: Larry Miller <larrym@aashto.org>
Date: Mon, 04 Oct 1999 11:46:31 GMT

What do you do with the Fire fighters and rescue workers who use portability as their only means of communications during emergency and/or disaster. And when the infrastructure is gone due to fire or hurricane and all there is is portable to portable use, then what? And how often does a remote disaster happen where there is no infrastructure in place and portable communications is your only choice? It is a misconception that law enforcement are the main users of this technology.

I agree that weighting needs to be considered since each questions does propose various degrees of need and requirements. ...Rick

* * *

Date: Mon, 4 Oct 1999 11:53:09 -0400
From: Larry Miller <larrym@aashto.org>
To: Rick.Murphy@cio.treas.gov

My point was not to discount the importance of portable use but to introduce the mode of usage by other than Police agencies into the discussion. Obviously, Fire and Forestry Fire response units use portable units also. Do we then make the primary emphasis portable use, or are other uses i.e. base, mobile relay, accorded the same level of priority? The groups major spokesmen

seem to forget that if the snow isn't plowed and the bridges maintained, the other "first responders" cannot get out of the garage. It behooves all of the NCC members to look at the big picture and not focus on small sub groups.

* * *

Date: Mon, 04 Oct 1999 09:32:36 -0400
From: "Richard DeMello" <DEMELLOR@state.mi.us>
To: <larrym@aashto.org>, <Rick.Murphy@cio.treas.gov>

The latest bunch of comments about using portable radio units for forest wildfire and structural fire suppression are right on. Such users are everyday communications needs that must be given major consideration. In most cases they receive less funding than the Police agencies therefore they are lower on the technology user curve while operating in a very dangerous occupation. However they must be able to assist during a massive incident with Police and Highway/Transportation agencies.

* * *

From: "Buchanan, David" <dbuchanan@isd.co.san-bernardino.ca.us>
To: Larry Miller <larrym@aashto.org>
Date: Mon, 4 Oct 1999 07:19:45 -0700

Fire Agencies are also heavy users of portable units. Even my Road Department has over 10 % portable use. I can't agree with your logic for 0 kbps for 6.25 kHz bandwidth. Clearly both standards transmit 4.8 or greater per 6.25 kHz bandwidth used. I think your issue relates to having a voice channel in 6.25 kHz bandwidth in the direct mode. Neither standard today does this but p25 has a clear path there. So the question is should we stop everyone from using the band until some manufacturer(s) can make a digital
radio with a voice channel in 6.25 bandwidth under a common standard? Who knows how long we would wait. My answer to my question is no - get on with selecting the standard that is available today and meets the FCC rules.

* * *

From: Don_Pfohl@ci.mesa.az.us
To: Dbuchanan@isd.co.san-bernardino.ca.us
Date: Tue, 5 Oct 1999 16:37:42 -0700

It seems to me that there has been more than enough rhetoric and some posturing going on in the discussion of an interim standard for interoperability. I think the issue is very simple. It is: "Is there an
existing standard that suits the need that we can adopt?" The issue is not whether we can modify a standard (thereby making it on its face not a standard any longer) and then getting that modified standard through a standards process. TETRA and Project 25 have been at it for about 10 years now, and that in not an option for us if we are to meet a February 2000 submission date.

We have before us two proposals. TETRA and Project 25. Whether we can choose one of these is the only issue. Forget about modifying the P25 CAI; in itself it is a standard, and that standard includes the whole CAI-not some subset of it. It describes a way that interoperability can be achieved. An analogy is that it describes a railroad train perhaps 50 cars long. The first 25 cars must carry specific cargo. The cargo for the last 25 cars is undefined. It does not matter what one puts into them; the user only know to expect 50 cars to pass and then to look for the next train of 50 cars. There is no sense in shortening the train to 25 cars. It does not achieve anything, and it costs a great deal of time and effort to get people to agree on the 25 cars. Let's get on with it.

If the matrix evaluation points to Project 25, it seems to me, that if people are consernce about the reserve bits, the NCC could recommend to the FCC that only those features that are standardized by ANSI/TIA/EIA - 102.BAAA can be used on channels designated for interoperability. Because of the standard itself, I think even this is totally unnecessary.

A recommended Project 25 statement is:
The technology and interoperability subcommittees recommend the adoption of ANSI/TIA/EIA - 102.BAAA as the interim interoperability standard. This document describes the Project 25 FDMA Common Air Interface. Use on interoperability channels should be limited to all allocated bits in the standard, and is should specifically preclude reserved bits except so far as any of these reserved bits may become accepted through the underlyingstandards process as standardized, allocated bits.

The standard itself says:
In many places in the following formats, there are extra bits which have no assigned functions. These are labeled as reserve bits or sometimes as null bits. Reserved bits are reserved for future standard
definitions. They are not intended to allow non-standard implementations, but to allow future revisions to the document. Transmitters which conform to the standard definitions should encode the reserved bits with nulls (zeros). Receivers should ignore these fields.

* * *

Date: Tue, 05 Oct 1999 18:20:25 -0700
To: nccio@ntoc.net, ncctech@ntoc.net, larrym@aashto.org, bercovici@khlaw.com,
kyle.sinclair@cio.treas.gov
From: John Powell <jpowell@uclink4.berkeley.edu>

To All:

The standard is what you get (P25 or TETRA). Making a change to either standard without going through the standards review process (requiring approval by the P25 Steering Committee/TIA/ANSI or TETRA/ETSI) makes it a non-standard and, thus, unacceptable under the FCC's modified guidelines.

The question of "reserve bits" is a moot point with respect to a baseline standard. They are provided for later expansion and/or the addition of new features. It is the ability to add enhanced features that makes a standard flexible and growable; it also allows various manufacturers to add those items that distinguish company "A" from company "B". However, the addition of these features are above and beyond baseline interoperability. By defining the standard feature set described in one of the standards documents as our "baseline", it moves all of the other features out to "options" - they are not prohibited, but it is understood that not all radios will support them, thus they can not, by definition, be part of the required interoperability mode. It is the responsibility of the standards bodies to ensure that these features are compatible (or at least do not hinder the standard) and, as might be appropriate from time to time, to add any whiz-bang feature that comes along and everyone must have into the standard.

The "baseline" must be supported on all radios; that does not mean we have to throw out the reserved bits on the standard. To do so could delay this process for years while it circulated through the standards bodies again. Neither the FCC nor users are going to allow this to happen!!!!!!!

I would suggest that our "baseline" needs to include the CAI, vocoder, and encryption - both are included in the approved P25 and TETRA standards, to one degree or another. It is up to us to determine which of these included features and how they operate, and/or are limited, makes one of the standards preferable over the other for operation in the US. Thats all. Nothing more. AND NO CHANGES TO THE STANDARDS! If you do not understand how the CAI works, Don Pfohl used a very good analogy in his earlier message (below).

* * *

Date: Wed, 6 Oct 1999 10:58:23 -0400
From: Larry Miller <larrym@aashto.org>
To: Don_Pfohl@ci.mesa.az.us

Don:
I agree that there is too much posturing and rhetoric concerning the interoperability standard and quite frankly much of what the NCC is trying to accomplish. The AASHTO Special Committee on Communications is preparing a detailed reply with respect to the matrix and associated issues. It may seem strange that a Transportation Agency Association is commenting on this issue since Transportation is not a "first responder" according to some. In any case my thoughts are as follows and are not an official AASHTO position.

The purpose of interoperability is to allow personell of different jurisdictions to communicate when they are involved in mutual activities. The Commission has allocated spectrum for this specific purpose. The standard should make this direct unit to unit communications simple and affordable. If enough special features i.e. encription, trunking....are added to the standard, the radios will be so expensive no one will buy them and interoperability will not be accomplished.

The speakers at the Michigan meeting chose to ignore the statement at paragraph 113 of FCC 98-191 which states that the Commission declines to adopt the Project 26 Phase 1 standards.

Footnote 291 does state that the 6.25 kHz channels can be combined and used as 12.5 kHZ channels until such time as standard 6.25 kHZ equipment is readily available.

We are then discussing an interim standard based on the urgent need to have this spectrum licensed. The maps and charts provided by Dave Eirman show that the 700 MHz spectrum cannot be used in much of the country before 2006. I understand that you can use some of it in your area and agree that steps must be taken to enable you to construct and operate your proposed system as soon as possible.

I have not agreed that we need to rush into recommending an interim technical standard since in my opinion equipment will not be offered for at least two years. If we really want to use equipment which operates with a 6.25 kHz channel bandwidth, adopting an interim standard of 12.5 kHZ will delay that process. If the manufacturers were required to offer equipment which complies with the 6.25 kHz channel standard, we might be astonished at how quickly they could comply. If a 12.5 kHz standard is adopted, even on an interim basis, I feel that the propspect of achieving greater spectrim efficiency will be delayed and may not ever exist. If, on the other hand equipment operating within a 6.25 kHz channel cannot ever be produced, we will benefit from the interim standard. The manufacturers have the answer to that question.

In any case, whatever standard is adopted should include all that is necessary for the basic interoperable functions and not be burdened with advanced features which will not be used in the multi-agency operations.

* * *

From: Eierman David-CFED01 <David.Eierman@motorola.com>
To: Larry Miller <larrym@aashto.org>, Don_Pfohl@ci.mesa.az.us
Date: Wed, 6 Oct 1999 08:16:49 -0500

Larry;
Just a reminder that the TV/DTV blockage maps I showed at NCC were worst case for a typical 500 watt ERP, 500 foot HAAT LMR system using the TV/LMR separation tables in 90.309. I believe the blockage of existing TV and allocated DTV can be drastically improved upon by using more aggressive TV sharing techniques like: 1) engineering analysis using terrain, 2) actual TV/DTV licensed parameters, 3) consideration for TV receiver selectivity (ability to use outer 3 MHz of adjacent TV channel), and 4) careful LMR system design (directional antennas, lower ERP, lower HAAT). These techniques have been used succesfully in 470-512 MHz band to short-space LMR against TV (6 MHz Public Safety allocation in New York City is based entirely upon these techniques). I plan to show more aggressive maps in the future.

The Public Safety and Public Service communities also need to aggressively pursue transition of all broadcast services out of this entire band.

Regards;
David Eierman
Senior Staff Engineer
Motorola, CGISS Spectrum & Standards

* * *

From: "WELLS, CARLTON" <WELLSC@dms.state.fl.us>
To: "'John Powell'" <jpowell@uclink4.berkeley.edu>, nccio@ntoc.net,
ncctech@ntoc.net, larrym@aashto.org, bercovici@khlaw.com,
kyle.sinclair@cio.treas.gov
Date: Wed, 6 Oct 1999 09:20:26 -0400

If the thread on this subject is any indication of the energy expended to develop the standard(s), then my "hat's off" to all who participated in developing the standard(s). Simply put, we have a matrix for guaging P25 and TETRA. Any divergence (i.e., part of a standard, changing a standard, etc.) was not the intent of the matrix. Keep it simple; else, the NCC wanders into standards-making which is NOT its purpose. Either the existing standard fits or it doesn't. I appreciate the discussing the merits of a standard (in part or whole) to assist our decision-making; but, let's not diverge from that. fyi...carlton wells

* * *

Date: Wed, 6 Oct 1999 12:42:08 -0400
From: Larry Miller <larrym@aashto.org>
To: "WELLS, CARLTON" <WELLSC@dms.state.fl.us>

I do not agree that Standards Setting is not what the NCC is about. The Commission at paragraph 113 of FCC 98-191 states that "we will require the NCC or a working group established thereunder seek and
obtain recognition as an ANSI-accredited entity." The NCC members, recognizing that we as a group have difficulty in agreeing to a place to meet, would not be able to accomplish that task. we chose instead to consider other standards which have been adopted by an ANSI equivalent organization.

* * *

From: rgurss@wahlone.com
To: Larry Miller <larrym@aashto.org>
Date: Wed, 6 Oct 1999 10:08:00 -0400

Larry, just a reminder that on May 4, 1999, the Commission released a Memorandum Opinion and Order on Reconsideration in WT Docket 96-86 which, among other matters, stated in paragraph 13 that:

"According, for the reasons stated above, we modify the provisions of the First Report and Order to provide that the NCC may, in its own discretion, seek to become or to have a subcommittee of the NCC become an ASD under ANSI procedures. The NCC is not required to do so to the extent that it is able to support adequately its technical standards recommendations with standards developed and approved under ANSI procedures by one or more existing ASDs."

* * *

From: "Buchanan, David" <dbuchanan@isd.co.san-bernardino.ca.us>
To: "WELLS, CARLTON" <WELLSC@dms.state.fl.us>, 'John Powell'
<jpowell@uclink4.berkeley.edu>, nccio@ntoc.net, ncctech@ntoc.net,
larrym@aashto.org, bercovici@khlaw.com, kyle.sinclair@cio.treas.gov
Date: Wed, 6 Oct 1999 07:30:34 -0700

I agree totally. It would be nice to live in a perfect whole have perfect standards that made everyone happy, but that is not the real world. As others have said we need to decide now on a standard not wait. Any delay in deciding on the standard delays the introduction of equipment. We need to pick from the two existing standards.

* * *

Date: Wed, 06 Oct 1999 10:48:43 -0400
From: "Robert Schlieman" <rschliem@troopers.state.ny.us>
To: larrym@aashto.org, WELLSC@dms.state.fl.us

Larry:

Please review the attached FCC 99-085, as it relates to ANSI and TIA and the NCC's role in standard establishment.

Bob

--=_481E898F.BBDAB24A
Content-Type: application/WordPerfect5.1
Content-Transfer-Encoding: base64
Content-Disposition: attachment; filename="fcc99085.wp"
Content-Description: WordPerfect 5.1
Click to view Base64 Encoded File fcc99085.wp

* * *

Date: Wed, 6 Oct 1999 18:09:28 -0400
From: Larry Miller <larrym@aashto.org>
To: Robert Schlieman <rschliem@troopers.state.ny.us>

Thank you for the copy of the M O and O on Recon FCC 99-85.

I am amazed at the number of people who read messages selectively, ignoring the items they do not wish to acknowledge. Your comments along with the multitude of others my short message has generated clearly shows that my statement concerning the decision of the NCC to not seek ANSI accredication due to the fact that we as a whole cannot agree on even the most minute issues is true.

Believe it or not even a non first responder knew that the NCC was not going to seek ANSI accreditation.. As for the open and non compensatory IPR issue I through that out for thought and discussion. The manufacturers are of in business to make money and wil not furnish anything free unless they are required to. Who knows, if the NCC were a strong body of affected parties and requred that the most basic features and not a complete suite of standards be furnished at no fee, it may be obtainable. Sounds like pie in the sky.

* * *

Date: Wed, 06 Oct 1999 11:22:34 -0700
To: nccio@ntoc.net, ncctech@ntoc.net
From: John Powell <jpowell@uclink4.berkeley.edu>
Subject: Re: 700 Matrix/Bandwidth Per Voice Channel/P25

To All:

I have included below a copy of Michael Wilhelm's 09/03/99 email that discusses the voice channel bandwidth issue and also the perception that the FCC has "rejected Project 25".

Reference Larry's email below, I would like to again point out that features like encryption and trunking are already part of both standards suites (Project 25 & TETRA).

Encryption is simply mandatory (reference IACP and federal filings on this issue) for fed/state/local law enforcement interoperability - up to Type I encryption <underline>required by law and/or Executive
Order</underline> for some federal agencies, including all of the major enforcement agencies that clearly have an interest in interoperability in the 700 MHz band. Law enforcement is arguably the largest user of PS communications and our basic interopereability requirements simply have to be met. That is why the federal government spent many of your tax dollars to ensure that P25's basic CAI met their encryption needs. While I can't speak for TETRA, I can say that P25 includes encryption in the basic CAI standard. We addressed trunking at the last meeting and I hope those issues were resolved there, but the same concept applies to trunking and other "advanced features."

Larry, that does not mean that DOTs or any other agency (even law enforcement agencies) who don't want to buy encryption have to spend money for it just because it is defined in the standard. What it does mean is that if you buy the option, it will work exactly as specified <underline>because it is defined in the standard</underline>. I would point out however, that since we are already digital, encryption has not proven to be an expensive feature to add (I saw Type 3 encryption listed as "included in the basic model" in one P25 brochure).

And once again, requesting a change in either standard (neither the NCC nor the FCC have the power to change the standard) sends everything back to the drawing boards at P25/TIA/ANSI or TETRA/ETSI with a potentially significant delay (of up to years) to get the standard modified, if either of the organizations would agree to the changes in the first place.

John Powell

----------EMAIL FROM MICHAEL WILHELM----------

>Date: Fri, 03 Sep 1999 16:42:54 -0400
>From: "Michael Wilhelm" <<MWILHELM@fcc.gov>
>To: NCCimp@ntoc.net, Nccio@ntoc.net, NCCtech@ntoc.net

>I've perceived a belief in some quarters to the effect that the NCC must necessarily recommend to the FCC, a narrowband voice standard that provides for one voice channel per 6.25 kHz bandwidth. I'd like to attempt a clarification. In fact, the Commission has not specified the number of voice channels per unit bandwidth; it has said only that a minimum spectrum efficiency of 4.8 kbps per 6.25 kHz bandwidth must be maintained. See Public Safety First Report and Order and Third Notice of Proposed Rulemaking (First R&O) at paragraph 38. And, although 700 MHz public safety channels were allocated in 6.25 kHz increments, 6.25 kHz channels could be combined "like building blocks to create wider channels
in two standard bandwidths, 12.5 kHz and 25 kHz." Thus, for example, the NCC could recommend technical standards based on 1 voice circuit in a 12.5 kHz bandwidth, so long as those standards provided a 9.6 kbps data rate throughput.

>That said, the Commission has expressed a clear preference for an ultimate standard that would provide one voice circuit per 6.25 kHz channel: "We fully expect that in the next few years that it will be both
technically and economically feasible to use [6.25 kHz channels] for certain applications such as digital voice and data." In that regard, the Commission declined to adopt Project 25 phase one standards (12.5 kHz bandwidth per voice circuit) in the First R&O and noted that Project 25 had undertaken a "promising phase two process" that would provide one voice circuit per 6.25 kHz channel. But it also noted that standard might not be achievable in the short term: "We have, however, arranged the band plan such that pairs of 6.25 kHz channels are adjacent and can be combined and used as 12.5 kHz channels until such time as 6.25 kHz equipment is available." First R&O at paragraphs 38, 113 and note 291.

>Thus, it seems to me, that one task of the NCC is to monitor industry standard setting activities and to rely on its resident expertise to determine whether, at the times the NCC makes its interim and final recommendations to the Commission, it is technically and economically feasible to implement a standard that provides for one voice circuit per 6.25 kHz or whether some other standard is appropriate. Of course, more than the bare recommendation will be required. As with any NCC document submitted to the Commission, the recommendation will have to be accompanied by clear documentation of how the NCC reached its recommendation: what research was done, what alternatives were considered and what technical, economic and other factors entered into the final recommendation. In short, there will have to be a clear paper trail underlying the recommendation.

>Thanks,
>MJW

* * *

From: "Robert Speidel (EUS)" <EUSRJSP@am1.ericsson.se>
To: "'Robert Schlieman'" <rschliem@troopers.state.ny.us>, larrym@aashto.org
Date: Thu, 7 Oct 1999 20:36:08 +0200

Gentlemen:

In the MO&O released by the FCC wherein the NCC (or a subset thereof) was no longer mandated to become ANSI certified, the commission was relatively clear concerning the FCC's expectations regarding IPR holders' licensing behavior. Basically, the FCC said IPR holders must " ...either (a) make its (their) technology available to applicants without compensation, or (b) license its (their) technology to applicants under reasonable terms and conditions that are demonstrably free of any unfair discrimination."

It therefore is critical to determine if any manufacturer's public pronouncements fulfill these requirements. As noted below, I do not believe that currently there is sufficient information publicly available to adequately ascertain whether or not any public statement about any manufacturer's licensing terms and conditions meet either of these requirements. Furthermore, I do not believe that simply expanding the applicability of the contents of any public statement beyond the signatories of any standards MOU to include the world in general, solves the problem.

As anybody who has ever been an employee knows, compensation takes many forms beyond the wages they receive weekly, biweekly, monthly, etc. Items such as benefits, options, etc., are valuable forms of compensation. In a licensing situation, the terms and conditions of any license could require that applicants provide something of value to the IPR holder beyond simple royalty payments calculated on the basis of product sold. In other words, "royalty free" does not necessarily equate to "without compensation."

For example, the terms and conditions of the licensing IPR holder's license could require a cross license for the applicant's IPR, not on the terms that the applicant offers, but on terms the licensing IPR holder demands. There should be no doubt that the applicant's ability to license its IPR on reasonable terms and conditions demonstrably free from discrimination is very valuable to that applicant, and any divergence from those terms and condition necessitates that the applicant give something of value, i.e. that applicant is providing compensation to the licensing IPR holder. The licensing IPR holder could not then correctly say that its IPR license is "without compensation," even though it may be "royalty-free."

Of course to make a determination of whether or not a proffered license is with or without consideration, such licenses must be publicly available. The lack of public availability of licenses for the IPR relevant to the "standards" under consideration is some of the information I noted above as currently missing. To make an accurate determination of whether or not any manufacturer's public statements meet the "without compensation" test, the public availability of such licenses is mandatory.

A requirement for cross licensing could also impact the second test, namely that the license be demonstrably free of discrimination. It is no secret whatsoever, that in the case of the "standards" being considered, the list of the relevant MOU signatories is significantly larger than the list of the relevant IPR holders. Since there is no requirement that an applicant for license also be a holder of IPR for which a cross license is demanded, two applicant's for license are being treated dissimilarly. The applicant that does hold IPR is being forced to give up something of value namely its right to license its IPR on terms that are reasonable and non-discriminatory. Yet the applicant who does not hold relevant IPR is not forced to give up anything of value. To me, the cross license demand may be inherently demonstrably discriminatory in practice. Thus, it is clear a "royalty free" license might not meet either FCC requirement, but we can't determine for sure, beca! use all of the information needed is not publicly available.

Maybe we should be adding an item to the matrix something along the lines that " IPR licenses are available without compensation (knowing what that really means), or that such licenses are available on reasonable terms demonstrably free of discrimination?" Then when it comes to evaluating this item in the matrix, we should not solely rely on what the IPR holders say their licenses mean, but we should demand that such licenses be available for review to make an independent determination. If IPR holders refuse or neglect to make the information available for such a determination, then I believe that particular matrix criteria for appropriate candidate "standard" would have to be marked "NO" and we move on.

Another thing that I want to weigh in on concerns the issue of "reserved bits" that exist in one of the standards being considered. Even though I agree with Don Pfohl's observation that the "reserved bits" are to be null in the case of something like the interoperability spectrum, I believe the concerns about the bits, which have been expressed by many, are not without a reasonable basis. The reason for acknowledging the reasonableness of the concerns, lies in the fact that there appears to be no enforcement/verification mechanism in existence, even though "games" could be played. Without such mechanism being in place, it is entirely possible that such "games" will seriously impact achieving true interoperability.

Therefore, I suggest that an item being added to the matrix at this time is appropriate. The item may read something along the lines that either (A) There exists adequate mechanisms to assure no diminution in Interoperability through the exercise of "loopholes," or (B) There are no "loopholes" to could be exercised to diminish Interoperability.

Bob Speidel
Manager, Regulatory Programs

* * *

Date: Thu, 7 Oct 1999 17:22:42 -0400
From: Larry Miller <larrym@aashto.org>
To: MWILHELM@fcc.gov, NCCimp@ntoc.net, Nccio@ntoc.net, NCCtech@ntoc.net,
larrym@aashto.org, rsheldrew@dot.state.nv.us

To: The National Coordination Committee

From: The AASHTO Special Committee on Communications
Richard Sheldrew, Chair
Larry A. Miller, Secretary

Subject: Evaluation Matrix for Interoperability Standard

Date: October 7, 1999

Formal Request for Comment, 700 MHz Baseline Standard for Interoperability Evaluation Matrix.

Consideration of comments are based on issues directed to unit-to unit clear and encrpted communications in the 764-776/794-806 MHz band and potential cross - patch to other public Safety user in other bands in the United States.

In reviewing the evaluation matrix presented by the chairman of the sub-committee Mr. Robert Schlieman. The following information is requested to be considered in our responded to a IN BAND BASE LINE STANDARD with the potential of being used by OUT of BAND (cross - patch) with Public Safety frequencies in the United States.

1. Since the FCC have rejected 12.5 Khz as the standard channel bandwidth and hoped to see the utilization of 6.25 Khz channels as the ditigal standard it would seem that the request to recommend a common- air- interface " In-Band " has already been set in motion. Such an interface is not readily available, hopefully we all agree, to today.

If this is the case then the use of any digital standard for In - Band Common -Air- Interface standard for direct unit- to- unit communications could not be all encompassing at this time, but only a step in the right. The task presented to us is not simple.The current embedded base of public safety equipment in this country that continues to grow as we debate a basic level common -air -interface for interoperability in the 764-776/794-806 Mhz band.

If we look at Questions 5, 6 and 7 it would seem that we start to move away from the basic common interface and start evaluating standards for power output levels, battery discharge rates and coverage requirements. We should not be evaluating equipment capability. Who's to say what technology will offer in the near future. It seems we are stretching beyond a basic common air interface. We request that these questions be omitted from the matrix.

The issues raised by questions 5,6, and 7 add nothing to what should be an objective analysis of the two standards currently under consideration.

Encryption should be allowed on the interoperability channels as long as it does not increase the cost and complexity of the subscriber units. To mandate DES (Types 1, 2, and 3) seems to exceed the scope of recommending an interoperability standard.

We agree with the FCC at paragraph 113 of document FCC 98-191 in rejecting Project 25 Phase One.The common air interface should be set to 4.8 Kbits digital voice per 6.25 kHz channel. The use of analog modulation that is set at 12.5 Khz channel bandwidth until a 6.25 Khz straight 4.8 kbps digital voice channel can be accomplished for IN- BAND interoperability should be allowed.

Adopting an interim standard today which may be obsolete and replaced within the next five years is not sound economic policy.

* * *

From: rgurss@wahlone.com
To: "Robert Speidel (EUS)" <EUSRJSP@am1.ericsson.se>
Date: Thu, 7 Oct 1999 17:00:28 -0400

I note that the Commission's May 4, 1999 MO&O on reconsideration reflected a realization that neither standards setting bodies nor ANSI are qualified to review actual licensing terms. The FCC rescinded its prior requirement that "license fees or terms in license agreements for proprietary technology contained in any NCC-recommended standard be approved by ANSI." (para. 18). The FCC did state that "proprietary technology may be incorporated in a standard ultimately recommended When the NCC concludes that technical reasons justify its incorporation, however, no intellectual property subject to a licensable proprietary right granted by patent or copyright, where the owner or holder of the right has licensed or expressed an intention to license the technology, may be included in a standard ultimately recommended unless the owner or holder of the right files a statement with the NCC prior to such recommendation which states that the owner or holder will either (a) make its technology available to applicants without compensation, or (b) license its technology to applicants under reasonable terms and conditions that are demonstrably free of any unfair discrimination."

Thus, the Commission expected that the NCC would rely upon the statements of IPR holders, and not dig deeper to evaluate actual terms and conditions. This is consistent with the patent policy used by ANSI and other standards organizations. (see paragraphs 15-16 of the May 4 MO&O). They necessarily rely upon self-policing, and private civil actions between the parties if necessary. ANSI and TIA explained to the FCC that their policies have worked well over the years. Thus, while I understand and share some of Bob Speidel's concerns about potential abuse of the licensing process, the better approach in my (and I think the FCC's) mind is to follow the lead of established bodies such as ANSI and TIA.

* * *

Date: Thu, 07 Oct 1999 22:17:07 -0400
From: "Robert Schlieman" <rschliem@troopers.state.ny.us>
To: GNash@telecom.dgs.ca.gov, wallmank@wallman.com

Glen Nash, Micael Wilhelm, Kathleen Wallman:

Robert Speidel raises valid points of a legal nature that need to be explored as to how far we can go in making recommendations that are likely to survive to Commission action.

As we are aware, IPR Licensing has been cloaked in Non-Disclosure Agreements, which effectiely preclude making public such information as royalty, cross-licensing requirements, etc.

Can we get an opinion on this?

* * *

From: "Robert Speidel (EUS)" <EUSRJSP@am1.ericsson.se>
To: "'Robert Schlieman'" <rschliem@troopers.state.ny.us>,
GNash@telecom.dgs.ca.gov, wallmank@wallman.com
Subject: RE: RE: 700 Matrix Discussions
Date: Fri, 8 Oct 1999 17:03:32 +0200

Bob:

You are very astute pointing out that licensing, fortunately or unfortunately, has been and I expect will continue to be cloaked in secrecy by non-disclosure agreements (NDA).

NDA are entirely reasonable to protect the licensor's underlying technology and processes, however, such non-disclosure agreements often, maybe always, cloak the terms of the licensing agreement or proffered agreement and the negotiations surrounding such licensing situations in secrecy as well. Whether, or in what cases, extending the coverage of the NDA to the terms of the licensing agreement/proffered license terms/negotiations is reasonable is a subject that could fill several volumes in and of itself. There are a myriad of reasons, some good some bad, why an IPR holder would want to extend the scope of the NDA, but I do not think the validity or invalidity of the underlying reason is dispositive of the issue. Consider the following.

In a situation where the NDA covers the license terms or proffered license terms and negotiations themselves, one has to wonder about the validity or reality of being able to seek redress through either a judicial process or the ANSI process. Suppose the parties are unable to reach licensing agreement because of alleged non-compliance with the "without compensation" requirement and/or alleged noncompliance with the requirement for "reasonable terms without demonstrable discrimination." When the NDA covers the licensing terms or the proffered license terms themselves, then how can the aggrieved party seek judicial or ANSI intervention/determination? Does the aggrieved party go to the court or ANSI and say that such and such is violating either requirement, but the NDA prevents me from telling you why? Heck, it is possible, maybe probable, that the NDA would be characterized as estopping the aggrieved party from even trying to avail himself or herself of judicial or ANSI ass!
istance.

Food for thought! I think Bob Gurss' analysis is reasonable, but I guess I am questioning the reality or validity of the suggested remedy, and whether or not such has been fully recognized/considered.

Bob Speidel
Manager, Regulatory Programs

* * *

From: rgurss@wahlone.com
To: "Robert Speidel (EUS)" <EUSRJSP@am1.ericsson.se>
Date: Fri, 8 Oct 1999 11:35:12 -0400

Bob, while I have not seen the specific nondisclosure agreements at issue, every such agreement that I have every reviewed has a clause allowing disclosure in a judicial proceeding. Again, this is not the first time that anybody has ever struggled with how to handle IPR issues in a standards-setting context (we had these same discussions 10 years ago when Ericsson, Motorola and others agreed to the Project 25 IPR MOU, which is now supplemented by the ANSI policy re the TIA102 standards). The ANSI policy may not be perfect, but it has worked for thousands of other standards. Other far more established standards bodies (such as TIA) have realized that they cannot possibility be the arbiter of what is a fair and reasonable license term. Why should the NCC take a different approach?